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The Usefulness of the Most Widely Reported Dutch Financial Statement Numbers to Stock Market Investors

by

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Keywords: Financial reporting, capital market, information content, earnings response, value relevance.

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Abstract

Much of the literature on the usefulness of company financial statement information focuses on the United States and the United Kingdom. But, these two countries are characterized by similar and rigid regulatory and enforcement regime. This study provides direct evidence from the Netherlands – a country with liberal financial reporting environment and different corporate governance regime. It empirically examines the information content of annual and semi-annual earnings announcements and the long-term association between stock returns and some widely reported financial statement variables. The evidence suggests that earnings and dividends disclosures made by Dutch companies are useful to stock market investors and the extent of the usefulness is not that modest as often perceived. However, the Dutch practice of reporting *accounting* cash flows as a summary performance measure does not have significant incremental usefulness.

1. INTRODUCTION

The paper empirically investigates whether stock market investors value simultaneous disclosures of major financial statement numbers made by Dutch companies. It first examines the information content of annual and semi-annual earnings announcements by examining short-term changes in stock return and trading volume. The paper then analyzes the long-term association of a few widely publicized company financial measures with stock returns. The study thus provides the first large sample evidence on the relationship between stock prices and some widely reported Dutch accounting numbers.

The motivation of the study comes from two distinct features of Dutch financial reporting system. First, the informational environment in the Netherlands is perceived to be not as rich as in the United States and the United Kingdom. Annual and semi-annual results are typically the two main sources of disclosing company-related information. Stock exchange listed companies in the Netherlands are not required to announce quarterly results. Second, it is a common practice for Dutch companies to focus on earnings, dividends and *accounting* cash flows (defined as net earnings plus depreciation and amortization) as the most important financial statement numbers¹. Firms emphasize these figures in their annual reports and other communications. Security analysts and the financial media primarily use these figures to evaluate corporate performance. The paper, therefore, develops testable hypotheses based on these distinct features of Dutch financial reporting environment. An empirical analysis is then performed using almost the whole population of Dutch listed firms.

¹ The regulatory requirements in the Netherlands include preparation of a balance sheet and an income statement. There is no legal requirement for firms to prepare a cash flows statement.

The study deals with the usefulness of financial statement information which has been an area of continuing controversy. One group of users (accountants, analysts, managers and regulators) find this information very important for purposes like contracting and security valuation. Another group consisting mostly of academics questions its usefulness. They argue that financial statement numbers are subject to rather arbitrary measurement practices and explain only a small fraction of stock return variation. Therefore, this issue continues to receive considerable attention in the accounting and finance literature (Lev, 1989; Strong and Walker, 1993; Brennan, 1995).

The initial spotlight started with the papers by Ball and Brown (1968) and Beaver (1968) who evaluated the stock market reaction to earnings at the time of disclosure. They document that earnings announcements are anticipated to a large extent by the stock market, but the announcement still results in disclosure of new information. Later on, attention was also directed to examine the association between stock returns and earnings over a longer time period. Beaver, Lambert and Morse (1980) find that earnings have significant information content. They also provide evidence of a less than one to one relationship between earnings and stock returns. They argue that earnings reported by companies suffer from noise and lack of timeliness while stock prices anticipate future earnings changes. Results from several other studies also indicate that the relationship of accounting information with stock returns is unclear. Lev (1989) after surveying the literature from three major accounting journals for the period 1980-88 comes to the following conclusion: earnings and earnings-related information (i.e. cash flows) explain 2 - 5% of the cross-sectional or time-series variability of stock returns for relatively narrow windows, and up to perhaps 7% for wide windows.

While most attention was paid to earnings announcements in the earlier years, attention diverted slowly to some other financial variables. Dividend announcements are potentially competing sources of new information. Changes in dividends are usually associated with changes in stock prices and are found to convey new information beyond that provided by earnings. Cash flows are also considered as another important variable because earnings signals might differ from cash flows signals. But, the empirical evidence on the information content of cash flows has been mixed. Ali (1994) documents inconclusive evidence of cash flows having incremental information relative to earnings and working capital from operations. Livnat and Zarowin (1990) document that disaggregating cash flows into different components improves its association with stock returns. Dechow (1994) observes that earnings are more strongly related with stock returns than cash flows. Board and Day (1989) examine the incremental information content of cash flows for British firms and find no evidence of a significant relationship between stock returns and cash flows. On the other hand, Ali and Pope (1995) find that cash flows do have incremental information content.

Although studies using data from the United States and the United Kingdom stock markets dominate the literature, relatively little evidence exists on other capital markets. Such studies are also of considerable interest due to differences in financial reporting practices, legal environments, alternative information sources, corporate governance regimes, and special roles played by groups like financial institutions and labor unions. All these factors might affect the information content of published accounting information as well as the usually reported association between financial statement numbers and stock returns. A debate has recently arisen in the United States over the informational role of German accounting numbers (Harris, Lang and Möller, 1994), and in Europe over the harmonization

of different accounting practices (Joos and Lang, 1994). Amir, Harris and Venuti (1993) investigate foreign companies listed in U.S. stock markets and find that the reconciliation of financial statements to U.S. accounting principles has incremental information content. Non-U.S. studies are of added interest because of the failure of U.S. studies in finding a strong and stable relationship between earnings and stock returns. Alford et al. (1993) analyze data from 17 countries and report that, relative to the U.S., accounting earnings are more value relevant in Australia, France, the Netherlands and the United Kingdom.

2. FINANCIAL REPORTING IN THE NETHERLANDS

The financial reporting environment in the Netherlands has several unique features². The Amsterdam Stock Exchange has, since the begin of the 20th century, set conditions for listed companies to publish a balance sheet, a profit and loss statement and directors' annual report. But, no specification regarding the content of financial statements was given. A relatively unregulated environment existed in the Netherlands until 1970 when the Act on Annual Financial Statements came in force. This is in contrast to the Securities Exchange Acts (1933) in the United States and the Companies Act (1844 and 1948) in the United Kingdom.

The second financial reporting regulation in the Netherlands took place in 1984 when the Fourth European Economic Community Directive became effective. The Council for Annual Reporting - established in 1982 and composed of representatives of employers, employees, analysts and auditors

² These are described in detail by Choi, Frost and Meek (1999), Roberts, Weetman and Gordon (1998) and Nobes and Parker (1995).

- reviews the accounting principles applied in practice and gives its opinions which are published in the form of guidelines. But, the only legally enforceable accounting rules are those specified in the civil code. There is also no legal mechanism to check compliance to accounting regulations, as is done by the Securities and Exchange Commission in the U.S. There are indications that financial reporting practices followed by smaller Dutch companies may not fully comply with all legal requirements laid down by the civil code.

Before 1983, there were no legal requirements in the Netherlands regarding current or historical cost accounting. Although some companies reported on current cost basis, historical cost accounting is more common in Dutch financial reporting (Nobes and Parker, 1995). The Dutch Civil Code, as amended in 1983, permits but does not require the use of current cost accounting. Corporate taxation is typically based on historical cost. Depreciation for tax purposes often varies from that charged in the profit and loss account. Therefore, taxable income of Dutch companies may deviate from the reported income. General legal reserves for the protection of creditors, as found in France and Germany, are usually not present in the Netherlands. Capitalization of intangibles other than research and development is also not mandatory. Finally, the opinion expressed by auditors in financial statements refers only to the legal requirements and may deviate from the prevailing accounting principles³.

One unique characteristic of Dutch financial reporting is that there is no legal requirement to prepare cash flows statement. Company financial statements are required to have a balance sheet, a

³ The recommendations of the Council for Annual Reporting on accounting principles are not statutory requirements. Although these provide an important frame of reference for auditors, departures from the guidelines are not referred to in the auditor's report (Roberts et al., 1998).

profit and loss account and explanatory notes. On the other hand, Choi et al. (1999) report that a cash flows statement is rather a norm for firms in the U.K. and the U.S. They argue that when a cash flows statement is not presented, it is often difficult to compute cash flows from operations as well as other cash flows measures. Although Dutch companies started voluntarily providing a cash flows statement in their annual report, the common procedure followed in reporting summary cash flows figure is simply by adding depreciation and amortization amount to net income⁴. Reporting estimates of cash flows per share figure is also emphasized in corporate disclosures. Interestingly, the widely-known Value Line in the United States forecasts cash flows per share as the sum of earnings and depreciation. Analysts and the financial press in the Netherlands provide major attention to cash flows per share data along with the two other financial statement numbers: earnings per share and dividends per share⁵. It can be mentioned here that financial statement regulation in the U.S. (FASB Statement No. 9, par. 33) and the U.K. (ASC, 1990, ED54) prohibits publishing cash flows per share data (Garrod and Hadi, 1998).

The Amsterdam Exchanges requires each listed company to publish a semi-annual report in addition to the annual report. The publication of a quarterly report is not mandatory, although a few larger companies disclose quarterly figures voluntarily. This contrasts with the U.S. where the publication of quarterly reports is the norm. Moreover, Dutch companies announce all major financial information simultaneously on the same day. In the U.S., earnings and revenues figures are announced in the Wall

⁴ As for illustration, on page 2 of the 1998 annual report of DSM (a multinational firm manufacturing chemicals and synthetics with more than 200 world-wide establishments and almost 23000 employees), earnings, dividends and cash flows per share for 1998 and 1997 are reported. At the end of the same annual report, these figures are also reported for a period of ten years. The cash flows figures are calculated by simply adding depreciation to net income.

⁵ A widely-circulated national publication, *Compendium of Dutch companies*, publishes annual rankings of companies using different criteria including net income and cash flows. The latter is calculated by adding depreciation to the former.

Street Journal days before the publication of annual report (Wilson, 1986). It is also common for Dutch firms to pay dividends only once a year. A few companies pay an interim dividend, which is not necessarily at six months prior to the final dividend.

Amsterdam stock exchange listed companies are officially required to announce immediately every fact that can have a material effect on stock price. But, hardly any measure other than temporary trading suspension is taken to ensure compliance. The practice of taking legal actions against the management of a listed company for failing to announce on time material information is also not widespread.

3. DEVELOPMENT OF HYPOTHESES

Prior theoretical and empirical research has established that differences in accounting and legal systems as well as capital market characteristics of countries affect the usefulness of financial statement disclosures. This study examines to what extent the practice of contemporaneous reporting of multiple financial statement data in the Netherlands is useful for stock market investors. Specific hypotheses related to Dutch financial statement disclosures are now presented in this section.

Hypothesis 1

It is widely known that the disclosure of unexpected information usually leads to changes in stock returns. Although the magnitude of stock return change depends on the content of disclosed information,

it is also expected to vary across countries depending on the prevailing information environment. As mentioned earlier, financial accounting practices in the British-American sense do not exist in the Netherlands. Regulation mandates most accounting practices prevalent in the U.S. and the U.K. Companies in the U.S. are, for example, obliged to announce quarterly results. Different institutional mechanisms exist to check adherence of accounting regulations. Compared to these two countries, a relatively mild regulatory regime characterized by a relatively infrequent disclosure mechanism is present in the Netherlands. Due to low levels of analysts coverage and the absence of other competing information sources, annual and semi-annual earnings announcements are expected to play a relatively more important role. Therefore, the first (alternative) hypothesis is:

H1: Earnings announcements made by Dutch companies are expected to have material information content, and therefore, generate large stock market reaction and show strong long-term association with stock returns.

Hypothesis 2

Although earnings announcements are expected to have the most dominant relationship with stock returns, dividend announcements are also considered to convey new information to stock market investors. Changes in dividends convey managers' private information about current and/or future cash flows. Stock market typically reacts favorably when firms increase dividends and adversely when firms announce dividend cuts. Dividends are considered by many to be the second most important metric to evaluate corporate performance. Managers, shareholders and analysts pay major attention to dividend

changes. But, what is the incremental usefulness of dividends disclosure relative to earnings? In order to investigate this question, the following (alternative) hypothesis is formulated:

H2: Dividends have incremental information content over and above that of earnings, and therefore, show significant association with stock returns.

Hypothesis 3

Companies in the Netherlands report, in addition to earnings per share and dividends per share, cash flows per share as a summary financial statement measure. Interestingly, the reported cash flows figure is defined in accounting terms by adding depreciation and amortization amount to net earnings. Dutch companies apparently consider this procedure of measuring cash flows as relevant for the capital market. The question that requires an investigation is, therefore, the following: do depreciation and amortization provide incremental value relevant information beyond earnings to stock market investors?

Wilson (1986) posits that although there is a general agreement that stock prices are related to future cash flows, there is a controversy about the usefulness of the accrual component of earnings for assessing stock values. He examines short-term stock returns at earnings announcement dates and finds no information content of long-term accruals. Measuring stock returns over the period of one year, Rayburn (1986) also observes similar result. It appears that U.S investors do not view long-term accruals like depreciation and amortization to have a significant relationship with stock prices. Dutch companies, security analysts and the financial press, on the other hand, consider *accounting* cash flows

per share as an important additional measure to evaluate corporate performance. Therefore, in order to investigate the incremental usefulness of this cash flows metric, the following (alternative) hypothesis is formulated:

H3: Cash flows measured as earnings plus depreciation and amortization have incremental information content over and above that of earnings, and therefore, show significant association with stock returns.

4. DATA

All 136 Dutch industrial companies continuously listed on the Amsterdam Exchanges from January 1984 until June 1989 are first considered. There exists no database which compiles the dates of annual and semi-annual earnings announcements. The only alternative is to collect these data by hand. For the first three years, the announcement dates are collected from daily press releases of the Dutch press agency. The remaining announcement dates are collected from searching the daily financial newspaper 'Het Financieele Dagblad'. The sample finally reduces to 114 firms because stock price data of a few companies are not available in Datastream and the announcement dates for some companies are not found⁶. These 114 companies represent in aggregate more than 90% of Dutch stock market capitalization. We are able to distinctly identify 561 annual earnings announcements and 554 semi-annual announcements.

⁶ Although all firms, large and small, publish annual and semi-annual reports, the financial press did not report each and every announcement.

We also hand-collect financial statement data of all five years from two publications: 'Financieel Economisch Lexicon' and 'Yearbook of Dutch Companies'. The three most widely reported financial variables - earnings, dividends and cash flows - are calculated on a per-share basis, and are adjusted for any capital changes. Earnings are calculated as net income before extraordinary items. Cash flows are estimated as the sum of net income before extraordinary items and depreciation and amortization.

5. RESEARCH DESIGN

(i) Market reaction / Event study

In this analysis, the focus is on examining stock market reaction around the time of announcement of annual and semi-annual reports. The idea behind such analysis is that if new and material information is disclosed through announcements of these reports, share prices and trading volume tend to change. On the other hand, if a capital market already expects a certain amount of earnings or dividends, then the announcement of the expected information will not cause a change in stock price or generate additional volume.

Stock return analysis

Like many previous studies in this area, the effect on stock returns is investigated using the following market model:

$$R_{it} = a_i + b_i R_{mt} + e_{it}, \quad (1)$$

where,

R_{it} = the rate of return on stock i in period t ,

R_{mt} = the rate of return on the market index in period t ,

a_i, b_i = stock- i -specific and time-independent parameters, and

e_{it} = error term for stock i in period t .

The model is estimated using ordinary least squares regression on daily stock returns. The abnormal return due to earnings announcement for each stock in the period surrounding these announcements (event period) is calculated as follows:

$$AR_{it} = R_{it} - (\hat{a}_i + \hat{b}_i R_{mt}) \quad (2)$$

where \hat{a}_i and \hat{b}_i are the estimated regression coefficients obtained from data which exclude observations surrounding the event period, and t is a time-index covering the period surrounding earnings announcements.

We consider the following event periods to examine the stock market reaction: day -50 to day +10 for annual announcements, and day -25 to day +10 for semi-annual announcements. The relatively long pre-announcement period is chosen to investigate if earnings are anticipated well before the announcements. The ten-day post-announcement period is selected to evaluate full and efficient adjustment of information released with these announcements. The estimation period used to calculate

the market model parameters is defined as follows: the 100 day period covering day -100 until day -51 and day +11 until day +60 in case of annual announcements, and day -75 until day -26 and day +11 until day +60 in case of semi-annual announcements. Estimates of the two coefficients are obtained from running ordinary least squares regressions over these 100 trading days.

The cross-sectional average abnormal return, AAR_t , across all firms in the sample is calculated for each day in the event period. If the announcement of annual or semi-annual report is not useful to investors then the average abnormal return in the announcement period will be equal to zero. These abnormal returns are also cumulated over different time intervals to obtain the cumulative average abnormal return, $CAAR_t$.

$$AAR_t = (1/n) \sum_{i=1}^n AR_{it} \quad (3)$$

$$CAAR = \sum_{t=k}^l AAR_t \quad (4)$$

The statistical significance of average abnormal returns is tested using a t-statistic where the standard deviation is computed using the time-series of portfolio average excess returns from the estimation period. Note that this method adjusts for any cross-sectional dependence in stock returns which may be important when announcements are clustered. A non-parametric sign-test is also performed to test if the number of firms with positive (negative) abnormal returns is significantly greater than 50 percent.

In analyzing share price reaction one must carefully define earnings relative to its expectations. It is the announcement surprise which is expected to produce any impact on share prices. The ability to empirically analyze the share price reaction of earnings announcements is, therefore, dependent upon the ability to measure the expected earnings. As we know, there exists no perfect earnings expectation measure. Therefore, one has to assume an expectation model. Brown (1987) discusses features of a few of these models. Analysts' forecasts, on the one hand, are viewed to be superior (because of the use of a richer information set) to mechanical forecasts, but on the other hand, these are usually positively biased. Besides, these expectations data are not available in the Netherlands for almost all companies during the sample period. Therefore, the random walk model is used to identify the earnings surprise component. According to the random walk model, the earnings forecast for a period equals the earnings reported in the previous period. Thus, the model assumes that stock market investors expect the earnings for the coming period to remain at least at the level announced in the previous period. We then calculate the surprise component of each earnings announcement, and divide the whole sample according to earnings increase and earnings decrease.

Trading volume analysis

In addition to the stock return analysis, the stock market reaction to annual and semi-annual announcements can also be examined by investigating the trading volume response. When news announcements reach the capital market, investors with divergent prior beliefs and with different private information concerning the underlying value of the stock are expected to have differential interpretation, and therefore, take new trading decisions. Thus, even there is identical information, investors may have

disagreement with regard to its precise effect. This leads to higher levels of trading around information releases. Increased trading volume can also take place if investors receive information sequentially and start taking speculative positions. Bamber et al. (1999) examine trading volume response to earnings announcements and show that trading takes place when investors revise their beliefs differentially due to differential interpretation of news announcements or when differences exist in the precision of pre-disclosure information.

In order to compute earnings or dividends announcement induced change in trading volume, one first needs a model of 'normal' (unrelated to earnings or dividends announcements) trading volume. We assume, similar to stock return analysis, that the normal trading volume of a stock is generated by the following market model:

$$V_{it} = a_i + b_i V_{mt} + e_{it}, \quad (5)$$

where,

$V_{i,t}$ = the trading volume of stock i on day t ,

V_{mt} = the trading volume of the market on day t ,

a_i, b_i = regression coefficients, and

e_{it} = error term.

The trading volume of each stock is calculated by dividing the number of shares traded on each day by the number of shares outstanding on that day. The average trading volume of the portfolio of all

stocks is used as a proxy for the trading volume of the market. The regression coefficients are estimated by running ordinary least squares regression using data from the estimation period. The estimated regression parameters are used to forecast the normal trading volume. We then calculate the abnormal (announcement related) trading volume for each stock in the event period⁷. The average abnormal and cumulative average abnormal volumes, AAV_t and $CAAV_t$, are computed on each day in the event period. The test statistic used to check statistical significance of abnormal trading volume is similar to that used in the stock return analysis.

(ii) Association / Relation study

Market reaction study necessitates the validity of efficient market hypothesis and the identification of precise announcement dates. Besides, the fact that Dutch companies always announce information on dividends and cash flows in conjunction with earnings announcements, it becomes very difficult to distinguish incremental information content of individual announcements. These issues are of less importance in association studies. Here, stock valuation changes associated with informational events occurring during a longer time period are taken into consideration. By examining the association between stock returns during the period of, say, one year and changes in the reported financial statement variables related to that period, we are able to test hypotheses 2 and 3.

⁷ In order to test the sensitivity of the results, alternate models of estimating abnormal trading volume are employed like market adjusted volume, serial correlation adjusted volume and market model based on log transformed volume. All these models provide qualitatively similar results.

We consider in this analysis the three most widely reported financial statement variables: earnings, dividends and cash flows. To measure the degree of association between stock returns and these financial statement variables, we estimate the following linear regression:

$$CAR_{i,t} = a + b * UX_{i,t} \quad (6)$$

where,

$ER_{i,t}$ = cumulative abnormal return of stock i in year t ,

$UX_{i,t}$ = unexpected changes in earnings, dividends or cash flows, and

a, b = estimated parameters.

Cumulative stock returns are calculated over a one-year period starting from two days after previous announcement until the day after current announcement. It is expected that by doing so the effects of all events in the course of a year are taken into consideration. Following Ali and Pope (1995), excess stock return is calculated by subtracting the market return⁸.

The above regression has three variants: earnings, dividends and cash flows. Yearly changes in these variables are first adjusted for very exceptional circumstances. For example, changes where the denominator is zero or negative are eliminated. The effect of any transitory component is then eliminated

⁸ Note that in estimating the stock market reaction during the event period, we used an estimation period to calculate each stock's risk. No separate risk adjustment could be made in this part of the analysis because the event period now encompasses the whole year.

by putting a limit of 100% to all changes greater than this amount. Similar procedure is commonly used in the literature (see Collins et al., 1994).

The usefulness of these three financial statement numbers is measured by evaluating the regression coefficient (b) and the explanatory power (R^2). The regression coefficient (b) is also known as the response coefficient. If earnings, dividends and cash flows are significantly useful to stock market investors, then their response coefficients will be significantly positive and the explanatory power will be high. The results obtained from this study could be used to compare with those available from the United States. As mentioned earlier, disclosure requirements in the United States are more extensive than in the Netherlands. Therefore, it is expected that the strength of association between financial statement numbers and stock returns will be relatively higher in the Netherlands.

Besides the above mentioned univariate analysis, we perform a multivariate regression analysis to evaluate the incremental usefulness of dividends and cash flows over and above earnings. In this part of the analysis, we allow both dividends and cash flows to interact with earnings. Thus, we are able to estimate the incremental contribution of each financial statement variable.

6. EMPIRICAL RESULTS

The descriptive statistics of the financial variables are presented in table 1. The financial statement variables are calculated as percentage change from the previous year. For example, in the earnings sample, 502 firm-year observations are used in calculating returns and earnings changes. The sample

averages of changes in earnings-, dividends- and cash flows-per-share are 8.9%, 10.2% and 7.5%, respectively. As mentioned earlier, all changes that exceed 1 in absolute value are deleted in order to avoid transitory influences. The average abnormal returns in the three samples are around zero.

(i) Test of hypothesis 1

The initial test of hypothesis 1 is based on market reaction study. The results are presented in table 2. The upper panel reports the results of annual earnings announcements and the lower panel reports those from semi-annual earnings announcements. The results show that earnings announcements are associated with a significant stock price change. Unexpected annual earnings increases lead to an abnormal stock return of 0.5% for the two-day announcement period (day 0 and +1). The t-statistic of 3.42 indicates that the excess return is statistically significant from zero. The announcement of unexpected annual earnings decreases leads to a negative abnormal return (-2.8% in two days). It is also statistically significant (t-value = 10.62). The non-parametric sign-tests also reject the equal probability of obtaining positive or negative abnormal returns during the announcement period. The evidence, therefore, suggests that annual earnings announcements have material information content.

Stock return behavior before and after earnings announcements is also analyzed. There seems to be minor pre-announcement increase in stock price for companies with positive earnings surprise and a pre-announcement decrease for companies with a negative earnings surprise. But, these stock returns are statistically not significant. The finding indicates a lack of anticipation of earnings announcements. It is consistent with the fact that the information environment in the Netherlands is less rich compared to

that of the United States. It is also consistent with the previous finding: once earnings announcement is made, stock market reaction is more sizeable. Stock price behavior during the post-announcement period indicates minor reversal. For the earnings increase sample, we observe a significant decline of 0.65%. But, the positive stock return (0.53%) in the post-announcement period for the earnings decrease sample is insignificant.

The information content of annual earnings announcements can also be evaluated from the higher than normal trading volume taking place during the announcement period. Table 2 shows that there is a decline in trading volume (-0.53%) before annual earnings announcements. It could suggest that some investors would rather wait until announcements are made. Trading volume increases significantly by 0.43% in the two-day announcement period. This reinforces the previous finding on significant information content of earnings announcements. Abnormal trading volume is significantly positive (0.63%) in the post-announcement period. Increased stock market activity following earnings announcement has also been reported in earlier studies.

We can draw similar conclusions from the results of semi-annual earnings announcements reported on the lower panel of table 2. The announcement of semi-annual earnings increases leads to 0.9% increase in stock returns in two days while that of semi-annual earnings decreases leads to 4.4% stock return decline. Both excess returns are statistically significant. Analyzing trading volume we observe that it also increases significantly by 0.38% with the announcement of semi-annual earnings. These results, therefore, reconfirm previous findings from annual earnings announcements.

Overall, the results reported above are consistent with the first hypothesis. There is enough statistical support for substantial information content of earnings announcements made by Dutch firms. The evidence is also consistent with the results obtained by Rippington and Taffler (1995) who investigate earnings announcements made by firms listed in the United Kingdom.

As mentioned earlier, this study also examines the usefulness of major financial disclosures by considering their long-term association with stock returns. The investigation is first done by performing a univariate regression analysis. Excess stock return is used as the dependent variable and changes in financial statement numbers are used as explanatory variables. The regression results for earnings, dividends and cash flows are presented in three panels of table 3. Within each panel, results are presented first year-by-year, and then by pooling all sample firms together.

First of all, we describe the relation between unexpected change in earnings and excess stock returns. We find that, in each year, the earnings response coefficient is positive and statistically significant. The last row of panel A reports results using pooled data over the five-year period. The earnings response coefficient of 0.3 indicates that one percent unexpected change in earnings accounts for almost one-third percentage change in stock returns. The explanatory power of the earnings variable is 21%. The results provide, once again, evidence in support of hypothesis 1, namely that earnings disclosures made by companies in the Netherlands are strongly related with stock returns. Earlier results from table 2 on stock market reaction demonstrate the short-term usefulness of earnings announcements. The results presented in panel A of table 3 now show significant long-term association between earnings and stock returns.

(ii) Discussion on univariate results

We also examine the univariate relations of dividends and cash flows with stock returns. The results are presented in panels B and C of table 3. In general, we find that both variables are significantly positively related to stock returns. Over the five-year period, the dividends and cash flows response coefficients are estimated to be 0.39 and 0.35, respectively. It suggests that, on average, one percent unexpected change in any of these two variables accounts for more than one-third percentage change in stock returns. The finding is quite similar to that of earnings. Looking at the year-by-year results, we observe that there are yearly fluctuations of response coefficients. The highest dividends response coefficient is 0.70 in 1986 while the lowest is 0.22 in 1987. For cash flows, we obtain the highest coefficient of 0.62 in 1985 and the lowest coefficient of 0.19 in 1987 and 1988. The results, similar to those of earnings, indicate some sort of instability in response coefficients. In fact, the stock market crash year (1987) systematically exhibits the lowest response coefficient of all years. But, the most important finding of table 3 is that earnings, dividends and cash flows have significant positive relationship with stock returns.

If we look at the explanatory powers of financial statement variables, we find that these are not as small as reported for the U.S. stock market. The results from the total sample indicate that the R^2 of earnings and dividends are equal to 21% while that of cash flows is equal to 16%. Once again, we find evidence that the three widely reported financial statement numbers in the Netherlands are strongly related to stock returns. Almost 20% of stock returns changes could be explained by changes in any of these three accounting variables. It is interesting to note that a higher explanatory power is obtained

from returns-earnings regression when non-U.S. data are analyzed. Ali and Pope (1995) find an explanatory power of 15% from the United Kingdom. Harris, Lang and Möller (1994) also obtain an explanatory power of 17% for German firms.

Countries like the United States and the Netherlands have a high degree of accounting diversity. Since the disclosure requirements in the United States are perceived to be more stringent and more extensive, the relatively lower explanatory power of U.S. financial statement numbers is not that unexpected. Company managers in the U.S. are required by law to disclose immediately any material information. Non-compliance leads to severe punitive measures. There exists always a fear of legal actions against managers. On the other hand, the relatively higher explanatory power of non-U.S. financial statement numbers could indicate a lack of alternative disclosure mechanisms in these countries. It is also possible that non-accounting differences like firm size and industry concentration play a more important role than the accounting differences.

(iii) Test of hypothesis 2

The analysis so far shows significant information content for stock returns of earnings, dividends and cash flows independent of each other. Now we examine if dividends and cash flows reported by Dutch firms have any incremental usefulness beyond that of earnings. We, therefore, perform multivariate regression analysis. The results are presented in table 4.

Models (1) and (2) utilize pooled observations of earnings and dividends separately (as reported earlier in table 2). In model (3), the dividends variable is analyzed in addition to the earnings variable. The results show that both earnings and dividends response coefficients are positive and statistically significant. The coefficient for earnings is 0.24 with a t-value of 5.64 and the coefficient for dividends is 0.19 with a t-value of 3.80. We also observe that the explanatory power of the regression increases from 21% in models (1) and (2) to 26% in model (3). The result supports the second hypothesis and confirms the incremental usefulness to investors of dividends beyond earnings.

(iv) Test of hypothesis 3

The third hypothesis is formulated to test the incremental usefulness of *accounting* cash flows. Therefore, the data on the cash flows variable are now analyzed together with the earnings variable. The results are presented in model (4) of table 4. We find that earnings coefficient is positive and statistically significant, but the cash flows variable is not statistically significant. The magnitude of the coefficient of cash flows variable is close to zero. The explanatory power of model (4) increases only marginally compared to model (1). The result provides evidence in contrary to the third hypothesis. It suggests that stock market investors in the Netherlands do not value reporting of the *accounting* cash flows in addition to earnings. In other words, the reported cash flows number has no incremental usefulness to investors.

When dividends and cash flows variables are analyzed jointly, both variables show significant positive response coefficients, and the explanatory power increases from 21% in model (2) to 25% in

model (5). It suggests that although *accounting* cash flows do not have incremental usefulness beyond earnings, it is not the case when dividends and cash flows are considered jointly. When all three variables - earnings, dividends and cash flows are - examined simultaneously, the response coefficients of earnings and dividends are found to be significantly positive, but that of cash flows is insignificant (see model 6). We, therefore, observe incremental usefulness for earnings and dividends, but not for cash flows. Accounting cash flows do not increase the explanatory power of the regression model materially once earnings and dividends are considered together. The evidence provided here refutes hypothesis (3). It questions the relevancy of accounting cash flows as a summary performance measure. It would be interesting to see if other ways of reporting cash flows of Dutch firms can show incremental value relevance.

7. CONCLUSIONS

This study provides empirical evidence on the usefulness of Dutch financial statement variables to stock market investors. The Dutch situation is of interest because it has a different regulatory and enforcement regime than that in either the U.S. or the U.K. Dutch accounting standards are formulated in less rigid way and the financial reporting environment is liberal. Therefore, a unique data set is constructed to empirically analyze annual and semi-annual earnings announcements of Dutch firms. Both short-term stock market reaction of these announcements as well as long-term association of reported financial statement numbers with stock returns are studied. The primary finding obtained from the study is that the most widely reported Dutch financial statement numbers are significantly related to stock returns.

The extent of the usefulness of these disclosures is not that modest as has previously been thought by many.

The issue of stock market usefulness is, in fact, related to the specific disclosure environment prevailing in a country. The results of the study show that earnings announcements made by Dutch companies convey new and material information to stock market investors. It is reflected in significant changes in stock return and trading volume. Furthermore, a strong association exists between the widely publicized figures like earnings, dividends, accounting cash flows, and stock returns. However, the observed relationships have significance only when the variables are analyzed independent of each other. When all three financial statement numbers are introduced simultaneously in a multivariate framework, then only earnings and dividends emerge as statistically significant. The cash flows number shows no statistical significance. The explanatory power of the regression model does not increase with the addition of cash flows variable to earnings variable. We conclude that the practice adopted by Dutch companies in reporting cash flows by simply adding depreciation and amortization to net earnings does not show any incremental value relevance beyond the earnings disclosure. It will be quite interesting to see if more detailed ways of estimating cash flows might yield incremental information to investors. Prior studies from the U.S. and the U.K. provide inconclusive empirical evidence in this regard.

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Table 1

Descriptive statistics

The return variable represents cumulative abnormal stock returns calculated for each firm over one-year period. Earnings, dividends and cash flows variables are calculated on per share basis and expressed in percentage change form (first difference deflated by previous year's value). Changes involving calculation with zero or negative denominator are eliminated as also any absolute change greater than 100%.

	Earnings sample		Dividends sample		Cash flows sample	
	Stock return	Change-in EPS	Stock return	Change in DPS	Stock return	Change in CFS
Mean	-0.013	0.089	-0.001	0.102	0.002	0.075
Median	-0.013	0.086	-0.005	0.093	0.011	0.085
St. dev.	0.296	0.446	0.013	0.016	0.015	0.017
Minimum	-1.081	-1	-1.081	-1	-1.081	-1
Maximum	1.125	1	1.059	1	1.125	1
No. of obs.	502	502	447	447	450	450

Table 2

Excess stock return and trading volume around earnings announcements

Stock returns are expressed as market-model excess returns. Trading volume is calculated as fraction of total number of shares outstanding and also expressed as market-model excess volume. Absolute t-values are shown in parentheses below each coefficient.

Trading period	Return (in percent)		Trading volume (in percent)
	Earnings increase	Earnings decrease	
Annual earnings announcements			
-50, - 1	1.360 (1.85)	-0.798 (0.60)	-0.532 (2.51)*
0, +1	0.503 (3.42)*	-2.810 (10.62)*	0.429 (10.11)*
+2, +10	-0.648 (2.08)*	0.527 (0.94)	0.635 (7.06)*
Semi-annual earnings announcements			
-25, - 1	-0.520 (1.04)	0.638 (0.58)	-0.024 (0.19)
0, +1	0.905 (6.37)*	-4.417 (14.20)*	0.383 (10.83)*
+2, +10	0.333 (1.10)	1.529 (2.32)*	0.501 (6.68)*

* statistically significant at the 1% level.

Table 3

The association between stock return and earnings, dividends
and cash flows changes.

Excess return is calculated by subtracting market return from individual stock return cumulated over a one-year period starting from two days after previous annual earnings announcement until the day after current announcement. The regression coefficients are estimated by regressing yearly excess stock returns on the corresponding unexpected changes in financial statement variables. In each panel, data are first used on a year-by-year basis and then are pooled over all years. Absolute t-values are shown in parentheses below each regression coefficient.

Panel A: Earnings

Year	a	b	R ²	N
1984	-0.062 (1.95)	0.294 (4.78)*	0.19	92
1985	-0.085 (3.60)	0.455 (9.13)*	0.44	106
1986	-0.037 (1.38)	0.514 (7.38)*	0.35	101
1987	0.015 (0.56)	0.170 (3.15)*	0.08	108
1988	-0.058 (2.43)	0.193 (3.08)*	0.08	95
Total	-0.040 (3.33)	0.304 (11.52)*	0.21	502

Panel B: Dividends

Year	a	b	R ²	N
1984	-0.048 (1.70)	0.441 (5.13)*	0.25	78
1985	-0.079 (3.13)	0.437 (7.38)*	0.37	92
1986	-0.061 (2.17)	0.696 (7.42)*	0.37	92
1987	0.014 (0.48)	0.222 (3.09)*	0.08	97
1988	-0.091 (3.31)	0.423 (3.91)*	0.14	88
Total	-0.041 (3.34)	0.388 (11.04)*	0.21	447

Panel C: Cash flows

Year	a	b	R ²	N
1984	-0.054 (1.59)	0.398 (4.36)*	0.18	84
1985	-0.047 (1.68)	0.621 (7.47)*	0.38	92
1986	-0.022 (0.63)	0.515 (4.88)*	0.20	92
1987	0.004 (0.15)	0.186 (2.66)*	0.06	94
1988	-0.012 (0.40)	0.192 (2.51)*	0.06	88
Total	-0.024 (1.70)	0.346 (9.21)*	0.16	450

* = statistically significant at the 1% level.

Table 4

The incremental information content of earnings, dividends and cash flows

The regression coefficients are estimated by regressing yearly excess stock returns on the corresponding unexpected changes in financial statement variables. Excess return is calculated by subtracting market return from individual stock return cumulated over a one-year period starting from two days after previous annual earnings announcement until the day after current announcement. For each model, results are obtained from regressions using pooled firm-year observations. Absolute t-values are presented below regression coefficients within parentheses.

Model	Intercept	Earnings	Dividends	Cash flows	R ²
(1)	-0.040 (3.33)*	0.304 (11.52)*			0.21
(2)	-0.041 (3.34)*		0.388 (11.04)*		0.21
(3)	0.043 (3.62)*	0.243 (5.64)*	0.188 (3.80)*		0.26
(4)	-0.030 (2.27)*	0.278 (7.38)*		0.034 (0.83)	0.22
(5)	-0.033 (2.43)*		0.288 (5.85)*	0.206 (3.38)*	0.25
(6)	-0.033 (2.44)*	0.240 (3.63)*	0.197 (3.60)*	-0.016 (0.183)	0.27

* statistically significant at the 1% level